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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,479	03/23/2004	Takao Tsuruoka	01064D/LH	3058

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EXAMINER	
CUTLER, ALBERT H	

ART UNIT	PAPER NUMBER
2622	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,479	TSURUOKA ET AL.	
	Examiner	Art Unit	
	ALBERT H. CUTLER	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3 and 5* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to communication filed on April 23, 2008. Claims 1-3 and 5 are pending in the application and have been examined by the Examiner.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on April 2, 2008 has been entered.

Information Disclosure Statement

3. The Information Disclosure Statement (I.D.S.) filed May 15, 2008 was received by the Examiner and has been considered.

Response to Arguments

4. Applicant's arguments filed April 2, 2008 have been fully considered but they are not persuasive.

5. Applicant argues Kuwata et al. does not teach selecting an arrangement of weight coefficients in correspondence with pixel positions, or that the histogram is generated based upon the arrangement of the weight coefficients in correspondence with the pixel positions in the input image. Applicant asserts that in paragraph 0351 and formula (68) of paragraph 0344, Kuwata et al. teaches of a single coefficient k.

6. The Examiner respectfully disagrees. Formula (68) is used to generate the luminance histogram (paragraph 0351). Formula (68) reads:

Dist_Sum = k*Dist_edg + (1-k)*Dist_ave

This function is demonstrated in figure 47. Basically, a uniform sampling histogram and an edge sampled histogram are combined to create a weighted histogram. This is detailed in paragraphs 0343-0347, 0351 and 0357. The edge sampled pixels Dist_edg (i.e. edge pixel positions) are multiplied by a coefficient k. All of the pixels resulting from the uniform sampling Dist_ave are multiplied by a coefficient (1-k). Therefore, different pixel positions are clearly weighted differently depending on whether they are edge pixels or not, and the weighting is done using an arrangement of weight coefficients (k, 1-k). This weighting is based on a photographing condition as the respective coefficients are adjusted based on whether the input image is a scenery or portrait image (See SD190-SD194, figure 45, paragraphs 0346 and 0357.).

7. Therefore, the rejection is maintained by the Examiner.

Claim Rejections - 35 USC § 103

8. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

9. Claims 1, 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al.(US 5,715,377) in view of Kuwata et al.(US 2002/0025079).

Consider claim 1, Fukushima et al. teach:

An image processing apparatus(see figures 1 and 17) for adjusting a gradation range(see figure 11) of an input image(101, figure 1), comprising:

photographing condition estimation means(103, 104, 105, and 106) for estimating a photographing condition of the input image(See column 12, line 53 through column 13, line 17. The photographing condition estimating means estimates if the input image was taken with back lighting and also estimates the people presence in the image.);

selection means(64A) for selecting a gradation table on the basis of the photographing condition(column 12, lines 12-50);

characteristic amount calculation means(106) for calculating a characteristic amount with respect to the input image(The characteristic amount calculating means(106) calculates a characteristic amount of reliability with respect to the input image, column 13, lines 8-17, column 23, lines 10-30.);

gradation conversion curve calculation means for calculating a gradation conversion curve on the basis of the gradation table(column 24, line 14 through column 25, line 30, especially column 25, lines 21-23. The original gradation table is modified based on a degree(i.e. a weighting) to generate a gradation correction table suited to the input image. See figure figures 14A and 14B.); and

conversion means(6, figure 17) for performing gradation conversion using the gradation conversion curve(column 24, lines 26-48) so as to perform gradation correction on the input image(101) to adjust the gradation range to a predetermined

gradation range(See column 13, lines 14-17, column 23, line 10 through column 25, line 30, figures 16A-16E. The gradation correction means generates a gradation correction curve to correct an input image based on the degree of backlighting, the degree of people in the image, and the degree of reliability.).

However, Fukushima et al. do not explicitly teach that the selection means selects an arrangement of weight coefficients in correspondence with pixel positions in the input image, a histogram generation means for generating a weighting histogram related to the characteristic amount based on the arrangement of the weight coefficients in correspondence with the pixel positions in the input image, or that the gradation curve is calculated based upon the histogram.

Kuwata et al. are similar to Fukushima in that Kuwata et al. teach of an image processing apparatus(paragraph 0002) that performs gradation correction(paragraphs 0333-0362) on an input image(paragraphs 0336-0337). Kuwata et al. are further similar in that a photographing condition such as whether the image is a portrait or a landscape image is taken into account when performing the gradation correction(see SD180-SD196, figure 45, figure 46, paragraph 0342).

However, in addition to the teachings of Fukushima, Kuwata et al. teach that a selection means selects an arrangement of weight coefficients in correspondence with pixel positions in the input image(See formula (68), paragraph 0351, figure 47. Basically, a uniform sampling histogram and an edge sampled histogram are combined to create a weighted histogram. This is detailed in paragraphs 0343-0347, 0351 and 0357. The edge sampled pixels Dist_edg (i.e. edge pixel positions) are multiplied by a

coefficient k. All of the pixels resulting from the uniform sampling Dist_ave are multiplied by a coefficient (1-k). Therefore, different pixel positions are clearly weighted differently depending on whether they are edge pixels or not, and the weighting is done using an arrangement of weight coefficients (k, 1-k). This weighting is based on a photographing condition as the respective coefficients are adjusted based on whether the input image is a scenery or portrait image (See SD190-SD194, figure 45, paragraphs 0346 and 0357.).), a histogram generation means for generating a weighting histogram related to the characteristic amount based on the arrangement of the weight coefficients in correspondence with the pixel positions in the input image (See SD310, figure 48, paragraphs 0351 & 0359. A histogram is generated based on the selected weight coefficients(k, k-1), or based on an automatically calculated weight coefficient(i.e. one related to the characteristic amount). This histogram generation is detailed in figure 47.), and that the gradation conversion curve is calculated based on the histogram(A luminance conversion table(figure 16) for generating the gradation curve is generated according to the weighted histogram, paragraph 0359.).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the selection means taught by Fukushima et al. select an arrangement of weighting coefficients with which to create a histogram used in the generation of the gradation conversion curve as taught by Kuwata et al. for the benefit that optimum image processing can be performed by permitting flexible evaluation not limited to just one criterion, but rather tailored to the specific photographed image(Kuwata, paragraphs 0357 and 0361).

Consider claim 2, and as applied to claim 1 above, Fukushima et al. further teach:

the photographing condition estimation means(103, 104, 105, and 106) estimates the photographing condition based on at least one of photometric information(The photographing condition estimating means estimates a photographing condition on the basis of brightness(i.e. photometric information), column 12, line 12 through column 13, line 17.).

Consider claim 5, and as applied to claim 1 above, Fukushima et al. further teach that the gradation correction comprises reducing the gradation range(See figure 14B, column 11, lines 15-30. The corrected gradation range indicated by curve 53 is clearly reduced when compared to the un-corrected gradation range shown in curve 52.).

10. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukushima et al. in view of Kuwata et al. as applied to claim 1 above, and further in view of Silverbrook(US 2004/0032524) and Haruki et al.(US 4,969,045).

Consider claim 3, and as applied to claim 1 above, Fukushima et al. further teach:

the photographing condition estimation means(103, 104, 105, and 106) comprises:

object distribution estimation means(104) for estimating at least one of a type of object distribution of an entire screen from the photometric information(See column 12, line 65 through column 13, line 2, column 19, line 10 through column 23, line 9. The distribution of people(i.e. a type of object) within an image(i.e. an entire screen) is estimated.); and

integration means(105) for integrally estimating the photographing condition by combining the photometry information(108) and the object distribution(i.e. people distribution, 109) estimated by the object distribution estimation means(104, see column 23, lines 10-55, figure 10. Four types of photographing conditions are estimated through the integration of the photometry information and object distribution information.).

Fukushima et al. also teach that the brightness information obtained can be used to determine the presence or absence of people within the image(column 12, line 53 through column 13, line 17).

However, the combination of Fukushima et al. and Kuwata et al. does not explicitly teach of a focal position estimation means for estimating at least one of three types of focal positions including a scenic photographing operation, a portraiture photographing operation, and a close-up photographing operation from the focal information.

Silverbrook is similar to Fukushima et al. in that Silverbrook teaches of a printer camera(paragraph 0028), which is analogous to the "video printer, etc." taught by Fukushima et al.(column 12, lines 55-56).

However, in addition to the teachings of Fukushima et al. and Kuwata et al., Silverbrook teaches a focal position estimation means(5, figure 1) for estimating at least one of three types of focal positions(2, 3, and 4, figure 1) including a scenic photographing operation("landscape", 4), a portraiture photographing operation(3, a group portrait is shown), and a close-up photographing operation(2) from the focal information(paragraphs 0032-0033).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to include the focal point estimating means taught by Silverbrook in the photographing condition estimating means taught by the combination of Fukushima et al. and Kuwata et al., and more specifically, have the output of the focal point estimating means taught by Silverbrook input into the integration means taught by Fukushima et al. for the benefit of aiding in the detection of people within the image(Silverbrook, paragraph 0033), and thereby improving the results of the people presence evaluation and photography condition detection taught by the combination of Fukushima et al. and Kuwata et al.

However, the combination of Fukushima et al., Kuwata et al. and Silverbrook does not explicitly teach that object distribution estimation means estimates two further types of object distribution including a center focus, and a central portion.

Haruki et al. is similar to Fukushima et al. in that Haruki et al. teach of an image processor(see figure 1) which contains a gradation correction section(302, figure 1).

However, in addition to the teachings of Fukushima et al., Kuwata et al. and Silverbrook, Haruki et al. teach that an object distribution estimation means estimates

two further types of object distribution(see figures 2 and 12) including a center focus(A1, figure 12), and a central portion(A2, figure 12, column 8, lines 5-46).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention of incorporate center focus distribution estimation and central portion distribution estimation as taught by Haruki et al. in the object distribution estimation means taught by the combination of Fukushima et al., Kuwata et al. and Silverbrook for the benefit of preventing an under- and/or over-exposed image due to the fact that images can be brighter or darker in the center when compared to the peripheral portion(Haruki et al., column 2, lines 19-37).

Conclusion

11. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

12. Nomura et al. (US 4,792,979) teaches creating a gradation correction curve based upon an accumulated histogram (See S4 and S5, figure 2). Nomura et al. further teaches of using different coefficients in highlight, middle and shadow parts of an image during gradation correction (column 12, lines 47-53).

13. Azuma et al. (US 6,266,102) teaches of using an arrangement of weighting coefficients during gradation correction (See figure 12).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALBERT H. CUTLER whose telephone number is (571)270-1460. The examiner can normally be reached on Mon-Thu (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc-Yen Vu can be reached on (571) 272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AC
07/1/2008

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